United Nations E/CN.17/2000/7/Add.1

Economic and Social Council

Distr.: General
2 February 2000

Original: English

Commission on Sustainable Development
Eighth session
24 April-5 May 2000

Sustainable agriculture and rural development

Report of the Secretary-General

Addendum

Urbanization and sustainable agricultural development*

Contents

		Paragraphs	Page
I.	Introduction	1–6	2
II.	Urban agriculture	7–10	2
III.	Agriculture and land use in peri-urban zones	11–12	3
IV.	Rural-urban linkages	13–23	4
V.	Support for sustainable urban and peri-urban agriculture	24–28	5
VI.	Priorities for action	29	5

* The present report has been prepared by the Food and Agriculture Organization of the United Nations (FAO), as task manager of chapter 14 of Agenda 21, in accordance with arrangements agreed to by the Inter-Agency Committee on Sustainable Development. It has benefited from extensive consultations and information exchange between United Nations organizations, interested Governments, non-governmental organizations and a range of other institutions and individuals.

00-27684 (E) 280200

I. Introduction

1. Most of the world population growth in the coming decades will be in the cities of developing countries. These cities will therefore account for most of the increased demand for food. Urban populations, however, are not only consumers but also producers of food, especially high-value perishable agricultural produce. The growing urban populations and their demand for food and other agricultural products will also have major impacts on land use in peri-urban areas and nearby rural areas. The present addendum examines the impacts of urbanization on sustainable agriculture, including the issues of urban agriculture, the impact of cities on peri-urban areas and rural-urban linkages.

2. A majority of the population in North America and Europe have lived in cities since the early twentieth century, a majority in Latin America since the 1960s and a majority of people in West Asia since 1980. People in Asia and Africa remain predominantly rural but that situation is changing rapidly. Asian cities are growing at an average rate of 3 per cent per year, compared to overall population growth of 1.4 per cent, while the population of African cities is growing at a rate of 4 per cent per year compared to overall growth of 2.6 per cent. In both regions the majority of the population will live in urban areas by 2020. By 2025, approximately 60 per cent of the world's population will live in urban areas.[1]

3. In numbers, this translates into 4.7 billion people living in urban areas by 2025, an increase of 2.2 billion from 1995. That increase is almost all accounted for by developing countries, where an increase of over 2 billion people is estimated. In contrast, the world's rural population is projected to increase by only 190 million. The rural population in developing countries is projected to increase by 270 million, while that of developed countries is to decline by 80 million.

4. Urban population growth is a result of both natural population growth in the cities and rural-urban migration. Rapid rural-urban migration creates adjustment pressures in cities and rural areas, impacting on nearly all dimensions of development: health, education, communications, transport, water supply etc. Rural-urban migration results, in particular, in a loss of young and educated people in rural areas, but it also relieves population pressure on limited land resources and provides remittances for investment in agriculture and non-agricultural enterprises.

5. Urbanization also means changes in overall consumption patterns due both to increasing incomes (for those that have jobs) and to urban lifestyles. Relatively more meat, dairy products, wheat and fresh fruit and vegetables are consumed in urban centres, and there is an increasing demand for high quality, processed and convenience foods.

6. The urban population living in poverty has rapidly increased during the past two decades, along with rapid urbanization. The United Nations Centre for Human Settlements (Habitat) reported that in 1990, at least 600 million people in urban areas in Latin America, Asia and Africa were living in life — and health-threatening conditions. The additional 600 million people who would be added to urban populations in developing countries during the 1990s would increase the pressure on land, housing, water and sanitation, food supply and distribution systems, and education and health services, and would add to the urban population living in poverty.[2]

II. Urban agriculture

7. Urban agriculture provides a critical livelihood and source of food for many urban dwellers, particularly low-income households in developing countries. Urban agriculture, for the most part, is an informal activity practised by poor and landless city dwellers. It usually refers to small areas, such as vacant plots, gardens, verges, balconies and containers within the city used for growing crops and raising small livestock or milk cows, for family consumption or for sale in neighbourhood markets.[3] Peri-urban agriculture refers to farming near cities, generally intensive semi- or fully commercial production. Based on a combination of national census data, household surveys and urban research projects in a number of cities, it is estimated that at least one quarter and in some cases a much bigger percentage of urban and peri-urban households in developing countries are involved in agriculture (see COAG/99/10).

8. Urban agriculture provides non-market access to food for low-income families, and also creates agricultural jobs and incomes. Particularly in Africa, urban agriculture has played a crucial role in helping people cope with economic crisis. Even in high-income

countries, urban farmers contribute to supplies of fresh and organic products, and urban agriculture helps to maintain green space and provides leisure and sightseeing functions. In places where rural transportation infrastructure is poor or where agricultural market systems are inadequate, both urban and peri-urban agriculture fill critical food supply gaps.

9. There are, however, also negative aspects of urban agriculture. Agriculture often makes large demands on limited water resources, which have more economically valuable uses in urban areas, and inappropriate agricultural and aquacultural practices pose environmental and health risks, including unpleasant smells and noise. Intensive farming may also reduce environmental capacity for pollution absorption. These problems are commonly exacerbated by a lack of appropriate city planning and regulation of urban agriculture.

10. Four major issues relating to sustainable development of urban agriculture require attention:

(a) First, land-use planning and management systems should be developed to promote the use of land for the most productive sustainable use, including provision of environmental services, such as buffer spaces, run-off management and erosion control;

(b) Second, urban agriculture should be managed to minimize air and water pollution, including contamination of water supplies by nitrates and phosphates from fertilizers, and other undesirable environmental impacts;

(c) Third, urban agricultural practices should be managed to protect food safety and health by preventing contamination of food with excess pesticide and herbicide residues, heavy metals, pathogenic organisms and other toxic materials; in particular, there are high health risks associated with the use of untreated or improperly treated sewage water to irrigate crops, including infection from pathogenic micro-organisms and helminths (worms), such as *Ascaris* (nematodes) and *Ancylostoma* (hookworm). Recycled treated wastewater is a viable source of water for urban agriculture;

(d) Fourth, efforts should be made to recycle urban wastes for use in agriculture, through waste handling and treatment facilities for sewage, organic solid wastes and other wastes. Such recycling could provide employment opportunities as well as useful materials.

III. Agriculture and land use in peri-urban zones[4]

11. Urbanization has dramatic impacts on peri-urban zones, including on land use, the structure of family farms, the economies of farm households, production and marketing. Farmers adjust resource-use practices to increasing population densities and market opportunities. In most cases, urbanization initially leads to resource degradation in peri-urban zones due to increasing pressure on land resources. However, declining productivity often induces farmers to shift to forms of land use that are both more intensive and more sustainable. Such sustainable intensification has been observed in areas where urban conditions have existed over some time, for example around Kano in northern Nigeria. Peri-urban development generally includes economic diversification and expansion of agricultural post-production operations.

12. Four major issues relating to sustainable development of agriculture in peri-urban zones require attention:

(a) First, conversion of land from agricultural to non-agricultural uses should be managed to promote the conversion of land with marginal agricultural productivity and preserve the best agricultural land for agriculture, taking into account the need to manage water use for agriculture and competing uses;

(b) Second, advisory and support services should be provided to support a shift to sustainable intensive production for urban markets, and to develop agricultural processing enterprises and other non-farm employment opportunities;

(c) Third, critical forest areas around cities should be protected, and sustainable intensification of agriculture and agro-forestry should be promoted to meet urban demand for forest products and substitutes and reduce pressure on forest resources. This may require assessment of the economic, social and environmental costs and benefits of upward and outward growth of the city;

(d) Fourth, changes in plant and animal species composition associated with changing land use and intensified cultivation in urban and peri-urban zones

need to be assessed with respect to biodiversity. In the forest zone near Yaoundé, for example, dramatic changes have occurred in tree cover, vegetative species composition and wildlife.

IV. Rural-urban linkages

13. Urbanization has a major impact on rural agriculture, including on what is grown, how it is grown and the sustainability of production systems. Rural-urban linkages depend on historical, political, economic, cultural and ecological factors, as well as on the macro-level policy changes being implemented in many countries.

14. At least six rural-urban linkages require attention in planning for sustainable agricultural development. One is the increased competition for natural resources due to growing urban demand and the resulting resource degradation, even in areas far from urban centres. Marketing opportunities in urban centres are contributing to an expansion of the area under cultivation in rural areas. Since land resources are limited, increases in food supplies increasingly require productivity growth through the intensification of cultivation. Both the extension of cultivation into marginal lands and inappropriate intensification practices are contributing to resource degradation.

15. A second linkage is the role of urbanization as a catalyst for the commercialization of agriculture, which increases the use of fertilizers and other inputs, promotes rural non-farm enterprises, and increases urban-rural trade and other exchanges. Commercialization may also have important gender consequences since the commercialization of traditional staples has been associated in many areas with the increasing involvement of men in food crop production, particularly where there has been productivity enhancing technological change. This has reduced the incomes of women from selling surpluses from subsistence production. On the other hand, increasing commercialization is generally associated with increasing agro-processing, which provides new income opportunities for women. The balance between displacement from traditional roles and new opportunities determines who wins and who loses from rural development.

16. A third linkage is demand-induced commodity shifts in production. These commodity shifts, which lead to regional and subregional specialization, could be among the most important factors affecting the sustainability of agriculture in the coming decades. In humid zones of Africa, for example, the spread of fresh maize as an urban fast food is a pervasive trend. The preference of urban consumers for maize has contributed at least in part to the substitution of maize for sorghum and millet in the savannah areas of sub-Saharan Africa. In areas where such commodity shifts are taking place, the new dominant crops often have different production requirements, potential for land degradation and resilience in the face of climate variation.

17. In a number of areas, including West Africa and the Pacific Islands, urban demand for rice, which is not easily produced locally, places downward pressure on the prices of locally produced staples, such as root crops, millet and sorghum. That shift in consumption patterns also has an impact on rice-supplying areas. Due to relatively inelastic consumer demand, increased productivity as a result of technological change in recent decades has reduced commodity prices, benefiting urban consumers while leaving rural producers poor. Many rice producers are seeking to shift out of rice, with implications for the use of land a d water resources.

18. Urbanization also tends to shift consumption patterns towards horticulture crops, meat and dairy products. However, it is not clear how large that shift will be in the future since urban populations include larger numbers of poor people, who have different consumption patterns from the earlier, richer urban populations.

19. A fourth linkage is the impact of urbanization on rural labour supply. Urban industrialization and rural-urban migration may raise agricultural wages, increasing the demand for new agricultural technologies. Rural-urban migration has led to a "youth drain" in many rural areas, with impacts on agricultural labour productivity and rural social life.

20. Reduced labour availability in rural areas, particularly during peak seasons, is encouraging the adoption of labour-saving technologies, including agro-chemicals and machinery, which increases labour productivity but also carries risks to land and water resources unless appropriate technologies are used. Moreover, poorer rural households that cannot easily invest in labour-saving technologies will face even

greater problems unless there are compensating mechanisms available, such as labour-sharing and microcredit.

21. A fifth linkage is the food transportation, distribution and marketing systems for getting food to urban consumers. There are many inefficiencies and service breakdowns in supply channels to and within cities throughout the developing world. Wholesale and retail markets are often not well organized or managed, and market facilities are old, poorly maintained and too small to meet the needs of the growing population. Lack of efficient and reliable distribution channels imposes costs on urban consumers. There are also costs to the environment since more resources are used for production to make up for waste and losses in distribution systems.[5]

22. A sixth linkage is the financial flows between urban centres and rural areas. Urban-rural remittances are one of the most important sources of investment capital in rural areas. Individuals returning from the cities following retirement or short-term employment bring savings, which are another major source of capital for agricultural investment. Remittances are important for the daily subsistence of some rural dwellers, such as many households headed by women. They are also important for acquiring durable non-investment goods and community social infrastructure.

23. In the other direction, resource flows from rural areas to urban centres have historically been a significant source of investment capital and stimulus to growth and employment creation in urban centres, often at the cost of growth in rural areas. Policies and institutions affecting rural-urban resource flows will continue to have an impact on technological development and capital investment for both rural and urban agriculture.

V. Support for sustainable urban and peri-urban agriculture

24. Based on the importance of urban agriculture for household food security — particularly for low-income households — and its impact on the welfare of women, technical and financial support should be given to sustainable urban agriculture. Urban farmers need information about appropriate crops, fertilizers, pest control and water conservation practices in order to improve productivity while reducing pollution and degradation. Institutions and regulations are also needed to manage the use of public and private land for urban food production. Organic production technologies and other farming techniques with low environmental impacts should be promoted.

25. For peri-urban zones, support should be provided for sustainable production practices for the production of commodities to meet urban market demands. For this purpose, there is a need to support and build on the adjustments that are being made by farmers to ensure sustainability under intensification. While not all adjustments are optimal, they reflect the perceived opportunities and constraints of farmers.

26. For both urban and peri-urban agriculture, there is a need to monitor and assess the increasing competition between agricultural and non-agricultural uses of land, water and other resources, and how such competition and associated changes in resource costs are affecting resource use, production systems and food supply, as well as social stability.

27. In relation to rural-urban linkages, there is a need to assess emerging patterns of land use and production in response to urban demand. Increases in distribution and marketing efficiency are needed at each link in the supply chain, including further development of agricultural processing activities and commercial institutions. Support should also be provided for rural industries that complement sustainable agriculture and land use.

28. There is also a need to assess the extent to which urbanization is a cause of rural stagnation, as seen in much of Africa, and growing regional inequalities. In the light of such assessments, countries should develop integrated rural-urban strategies for sustainable agricultural development. This will require coordinated efforts at multiple levels, including at the levels of Governments, sectoral ministries, local authorities, community organizations, farmers and other concerned groups and individuals.

VI. Priorities for action

29. Meeting the food needs of rapidly growing urban populations is leading to pressure on agricultural systems and the environment. Small-scale urban agriculture, intensive commercial peri-urban agriculture, and strengthened and improved rural-urban linkages can all make important contributions to

meeting urban food needs. To ensure that those changes contribute to sustainable development will require adjustments in rural agriculture, improvements in distribution channels, dissemination of information on sustainable agriculture in different zones and technical assistance to farmers. Priority areas for action include:

(a) Strengthening capacity for land use planning in urban and peri-urban areas;

(b) Designing and implementing regional development plans for integrated urban and rural development;

(c) Strengthening extension and training services for urban, peri-urban and rural farmers in sustainable agricultural and resource management practices;

(d) Improving food distribution, storage and marketing systems, and promoting the development of agro-processing activities to meet the needs of growing urban populations;

(e) Improving the definition and administration of property rights to address conflicts over land and water use;

(f) Strengthening the capacity of public administrations, farmers organizations and other organizations to respond to new agricultural opportunities and problems resulting from urbanization through coordinated and cooperative efforts.

Notes

[1] See United Nations, *World Urbanization Prospects: the 1996 Revision* (Sales No.E.98.XIII.6).

[2] See United Nations, *An Urbanizing World: Global Report on Human Settlements 1996* (Oxford University Press, 1996).

[3] Urban agriculture also includes some intensive and well-managed production by commercial enterprises.

[4] "Peri-urban zones" are areas surrounding cities, which are in most ways integrated with the city. They extend as far as there is direct impact and influence of the urban centre, with greater population density, infrastructure and services than is generally found in rural areas. Depending on circumstances, a peri-urban zone can extend from the urban boundary to 50 or more kilometres from an urban centre.

[5] The issue of getting food into cities was identified and appraised as an emerging development priority in FAO document C.99/2, submitted to the FAO Conference at its thirteenth session, in November 1999.